

**ROCKY MOUNTAIN CENTER FOR  
OCCUPATIONAL AND  
ENVIRONMENTAL HEALTH -  
EDUCATION AND RESEARCH CENTER  
FOR OCCUPATIONAL SAFETY AND  
HEALTH**

**SUMMARY ANNUAL REPORT**

**July 1, 2009-June 30, 2010**

**NIOSH Training Grant  
No. T42 OH 008414**

**SUBMITTED BY:  
KURT T. HEGMANN, M.D., M.P.H.  
CENTER DIRECTOR  
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SALT LAKE CITY, UT 84108**

**(October 1, 2010)**

**Administration** Kurt T. Hegmann, MD, MPH, Center Director

In 2009-10, the RMCOEH continued to meet all goals and objectives. The RMCOEH holds monthly Center Executive Committee meetings, biannual RMCOEH Advisory Board meetings, Advisory Board Executive Committee meetings and an annual RMCOEH retreat. There were several major advances.

- The RMCOEH received extension of the workers compensation premium tax credit mechanism for supporting the center (SB159, 2005 G.S.) for the maximum 10-year duration (1HB221, 2010 G.S.).
- The RMCOEH has matriculated and graduated its second class of students in our new, accredited Master of Occupational Health and Master of Science in Occupational Health Degree Programs.
- The center implemented a new plan to increase student publications
- The RMCOEH hired 2 new faculty members (IH, OM).
- RMCOEH received notification of funding of one new R01 award and promising scores on 4 additional training and research grants submitted.

**Diversity Recruitment** Don Bloswick, PhD, PE, CPE

RMCOEH faculty are working with Sweeney Windchief, Assistant Dean for Diversity at the U. of Utah. Dr. Bloswick has coordinated with representatives of Northern Arizona University (6<sup>th</sup> in the nation for Native American engineering graduates) to schedule a visit by RMCOEH personnel. We have made contacts with the National Hispanic Medical Association and the Latino Medical Student Association to offer rotations and shadowing opportunities for prospective OM residents.

**Statistical Economic Evaluation Unit (SEEU)** Maureen Murtaugh, PhD

The SEEU served as a resource to the Center in providing the statistical and economic tools for evaluating interventions to improve workplace health and safety. The SEEU has contributed through providing insights, including lectures to trainees conveying the rudiments of cost assessment and cost-effectiveness techniques.

**Outreach** Connie Crandall, MA, MBA

Outreach continued to be a significant emphasis at the RMCOEH, with the goal ensuring that knowledge is translated into practice. The Center policy requires measurable outreach activities by each faculty member with thousands of contact hours recorded annually. For example, in 2009-2010, over 1,500 contact hours were logged through activities that included committee appointments, presentations, consultations, and participation in career day events for national, regional and academic institutions, local business and trade, insurers, community groups, occupational and environmental health organizations, and the public.

**Pilot/Small Projects Research Training (PPRT)** Matthew Hughes, MD, MPH

The RMCOEH Pilot/Small Projects Research Training Program and the 5 awardee/investigators continue to make excellent progress in advancing the NORA research agenda and providing research career development. Dr. Seifert completed his project *Physiological Stress during Avalanche Control and Patient Transport in Professional Ski Patrollers*, and will present his findings at the International Congress on Science and Skiing in December 2010. Dr. Thiese has completed analysis for his project *Factors Associated with Crash Severity among Commercial Truck Drivers* and will submit manuscript for publication in September 2010. Dr. Merryweather has completed most work on his projects. The *Modified Guidelines for Safe Material Handling using Dynamic Forces* project is near completion, and results were presented at two conferences. A manuscript for publication will be submitted by the end of Sept. 2010; *Evaluating Knee Joint Stresses during Kneeling Work* project is nearing completion. Preliminary results were presented at the 2010 Intermountain Graduate Research Symposium in March. A no-cost extension was granted to allow preparation of manuscripts and submission for publication. A *Device to Reduce BCF and Improve Return to Work Scenarios for Workers with LBP* project (partial funding) has been granted a no-cost extension as IRB approval was delayed. Completion of data collection and analysis is planned by end of August 2010. From the 2009-10 year, Dr. Goodridge completed the project originally awarded to Dr. Saito on *Chemical Analysis of Bacterial Composition and Potency in Agriculture* project and will submit a manuscript for publication in September 2010. The Pilot/Small Projects Research Training Management Committee met on 28 June 2010 and was satisfied with the application and revised review procedures.

**NORA Research Project** Kurt T. Hegmann, MD, MPH

The LBP cohort study continued. We have not enrolled more subjects in the past year, rather we have worked vigorously to complete data clean-up activities and final statistical analyses are anticipated later in 2010.

**Ergonomics & Safety (E&S)** Don Bloswick, PhD, PE, CPE

The E&S Program trained 14 full time (6 M.S., 8 Ph.D.) and 11 part time trainees (10 M.S., 1 Ph.D.) of whom 8 graduated during the AY (8 M.S.). The academic program now consists of eight 3-credit courses offered on a regular basis. All topics (both "highly recommended" and "recommended") noted in the NIOSH Guidelines for Graduate Programs in Occupational Safety (by The Occupational Safety Academic Training Program Panel) are covered in the M.S. and Ph.D. program courses (or pre-requisites). E&S students are required to present their research at the successful, annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, which has been held on the University of Utah campus since 2003. The interdisciplinary course "Occupational Health Solutions" has been refined even further and is a great success. The course is team taught by Drs. Wood, Merryweather, Collingwood, and Larson (OM, E&S, and IH cores). This course includes on-site student projects completed by interdisciplinary teams from RMCOEH (IH/HSAT, OM, OIPRT, and E&S) who visit local manufacturing facilities and work together to solve real world health and safety problems. It is a required capstone course for all trainees. The off-site ATK M.S. Mechanical Engineering Program has grown to 35 active students, of whom approximately 30% focus on Ergonomics and Safety as their area of emphasis and take 3-5 E&S courses. Dr. Bloswick developed and coordinated the approval of a graduate Systems Engineering Certificate in AY 2008/9. One area of emphasis is ergonomics and safety. Six students have completed the certificate and there are approximately 25 active students in the program.

**Industrial Hygiene (IH)** Rod Larson, PhD, CIH

The IH program continued to meet its goals and objectives. Four students graduated this period from the program with MSOH degrees and one with an MSPH degree, all with emphasis in industrial hygiene. An additional seven full-time students began matriculation in the new Master of Science in Occupational Health (MSOH) degree, one part-time student in the MSOH degree program, and three part-time students are working on Public Health degrees (2 MSPH, 1 MPH) with emphasis in IH bringing the total number of IH students for this last year to ten full-time and four part-time students. The IH Program research projects included evaluation of direct-read instruments to determine the potential exposures of workers to hexavalent chromium when welding stainless steel, the solubility of beryllium in synthetic lung fluid from various ores containing beryllium, and evaluation of the nano-particle emissions from high use laser printers in office space. We are currently accredited by ABET-ASAC and are scheduled for a regularly scheduled renewal of this accreditation fall of 2010.

**Hazardous Substances Academic Training (HSAT)** Leon Pahler, PhD, MPH, CAIH

The HSAT program continued to meet its goals and objectives. Two students graduated from this program with MSOH degrees. Four new students entered the program bringing the number of HSAT students to six for this period. In addition, because of diversity recruiting, one of our new HSAT students is of Hispanic ethnicity. As mentioned in the IH program summary, the new Master of Science in Occupational Health (MSOH) degree granted to HSAT as well as the general IH programs is accredited by ABET-ASAC. The HSAT students were involved in multiple research projects, including evaluation of direct-read monitoring equipment to monitoring concentrations of various particulates in air generated in smelter activities. These evaluations involved testing of a GRIMM portable aerosol spectrometer to monitor for select metals, a DustTrack unit, and a HazDust monitoring unit. The emphasis was on determination of the instruments to provide relative accurate estimates of select metals in air after a correction factor is identified and used to convert the direct-read results to more accurate concentration information for each metal of interest. A manuscript by an HSAT student was published this past year.

**Occupational Injury Prevention & Research Training (OIPRT)** Don Bloswick, PhD, PE, CPE

The OIPRT program continued to meet its goals and objectives. The program trained three PhD level trainees during the AY. The two primary goals from the last grant submission, (1) provide quality Occupational Safety

Engineering (OSE) and Occupational Injury Epidemiology (OIE) academic programs, and (2) accomplish NORA-related OSE and OIE research and translate it into practice (r2p) have been accomplished. The academic program integrates engineering and epidemiology with students in the OSE program emphasizing engineering and students in the OIE program emphasizing epidemiology. Two of the three OIP Students were involved in two large prospective NIOSH-funded research projects: Upper Limb Musculoskeletal Disorders - Quantifying Risk and/or Low Back Pain - Quantifying Risk Factors. One new Ph.D. OIPRT student has extensive academic and practical experience in construction safety. His Ph.D. research will likely relate to this area. In addition to journal submissions, students are required to present their research at the annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium, which has been held on the University of Utah campus since 2003.

**Occupational Medicine (OM)** Eric Wood, MD, MPH

In total, the OM residency program has trained 80 highly skilled OM physicians filling a critical need to NIOSH Region VIII, which is underserved by OM specialists. During the period of 07/01/09-06/30/10, 6 residents were enrolled in the program with 4 residents in the academic PGY-2 year, and 2 residents in the practicum PGY-3 year (1 resident enrolled off-cycle in the PGY-2 year starting the program in January 2010). Current academic training consists of completion of graduate education over a period of 2 semesters leading to the MOH degree. Two graduating PGY-3 residents completed the MPH degree in May 2010. One resident from the US Air Force completed the MOH degree in May 2010 and is now a PGY-3 in the Residency in Aerospace Medicine (RAM) with the US Air Force. We anticipate increasing the number of residents through the US Air Force, and 2 RAM residents have already agreed to enter the MOH program for the 2010-2011 year. We also plan to increase the number of residents in the 2010-2011 academic year due to notice of a grant award by the US Health Resources and Services Administration (HRSA). Clinical and research activities continue as in the past year. The program is developing updates to clinical practice guidelines for the American College of Occupational and Environmental Medicine (ACOEM) to improve care of injured workers.

**Continuing Education (CE)** Connie Crandall, MS, MBA

The CE Program met its goals and objectives for 2009-2010. Attendance remained high with 3611 trainees attending 196 CE activities. This includes both traditional (3547 trainees) and online (64 trainees) activities. Distance education efforts include the following online OSHA courses that are offered in cooperation with a commercial provider: OSHA 10-hour General Industry Outreach Training Program, OSHA 30-hour Construction Industry Outreach Training Program, OSHA 510: Occupational Safety and Health Standards for the Construction Industry, and OSHA 511: Occupational Safety and Health Standards for General Industry. The CE Program again partnered with the Utah Association of Occupational Health Nurses to offer a CA-MRSA webcast on Handling Respiratory Infections and developed an online Ethics and Professional Practice of Industrial Hygiene course. It also continued to offer a number of courses in surrounding areas to enhance regional coverage. Courses were conducted in Burley, ID, Riverton, WY, Park City, UT, Provo, UT, Billings, MT, Tremonton, UT, HAFB, UT, Evanston, WY, Dugway, UT, Clearfield, UT, Green River, WY, Pocatello, ID and Naturita, CO. New courses offered during this period include 1) Ethics and the Professional Practice of Industrial Hygiene; 2) Case Management: Two Perspectives; 3) Lead Safety for Renovation, Repair and Painting, 4) Crucial Confrontations, 5) Preparing for Pandemic Flu, 5) Assessing and Managing Risk; 6) Focus Four Hazards, and 7) What You Need to Know about NFPA 70E.

**Hazardous Substance Training (HST)** Connie Crandall, MA, MBA

The HST Program met its identified goals and objectives for 2009-2010. 401 trainees attended 62 HST courses, including online. One new course was offered as an open enrollment course: 1) Chemical Reactivity Hazards: Lab Scale Recognition and Control. Several courses were offered throughout Utah, three in Tremonton, UT and one in Ogden, UT. Hazardous substances online courses are provided in partnership with ETOOnline. A regional needs assessment was conducted in 2010; as they are conducted every other year, the next assessment will be conducted in 2012. The target audience for the assessment includes government agencies as well as other facilities and organizations with a projected need for hazardous substances training. Several of these government agencies are represented on the HST Advisory Committee.